PATENT
Customer No. 22,852
Attorney Docket No. 08350.1659

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Brian R. JANES et al.	)	Group Art Unit: 3652
	)	
Application No.: 10/028,580	)	Examiner: Michael S. Lowe
	)	
Filed: December 20, 2001	)	
	)	
For: LOAD BEARING MEMBER ARRANGEMENT AND METHOD	)	Confirmation No.: 3268

Mail Stop Appeal Brief--Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

TRANSMITTAL OF APPEAL BRIEF (37 C.F.R. 41.37)

Transmitted herewith is the APPEAL BRIEF in this application with respect to the Notice of Appeal filed on February 24, 2005.

This application is on behalf of

☐ Small Entity ☒ Large Entity

Pursuant to 37 C.F.R. 41.20(b)(2), the fee for filing the Appeal Brief is:

☐ $250.00 (Small Entity)

☒ $500.00 (Large Entity)

TOTAL FEE DUE:

Appeal Brief Fee	$500.00
Extension Fee (if any)	$0
Total Fee Due	$500.00

☒ Enclosed is a check for $500.00 to cover the above fees.

PETITION FOR EXTENSION. If any extension of time is necessary for the filing of this Appeal Brief, and such extension has not otherwise been requested, such an extension is hereby requested, and the Commissioner is authorized to charge necessary fees for such an extension to our Deposit Account No. 06-0916. A duplicate copy of this paper is enclosed for use in charging the deposit account.

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: April 22, 2005

By: _____
Wenye Tan
Reg. No. 55,662

PATENT
Customer No. 22,852
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Sir:

APPEAL BRIEF UNDER BOARD RULE § 41.37

In support of the Notice of Appeal filed February 24, 2005, and further to Board Rule 41.37, Appellants present this brief and enclose herewith a check for the fee of $500.00 required under 37 C.F.R. § 1.17(c).

This Appeal responds to the December 2, 2004, final rejection of claims 1, 4-35, 47, and 48.

If any additional fees are required or if the enclosed payment is insufficient, Appellant requests that the required fees be charged to Deposit Account No. 06-0916.

Real Party In Interest

Caterpillar Inc. is the real party in interest.

Related Appeals and Interferences

There are currently no other appeals or interferences, of which Appellants, Appellants' legal representative, or Assignee are aware, that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status Of Claims

Claims 1 and 4-48 are currently pending, with claims 36-46 withdrawn from consideration. Claims 1, 4-35, 47, and 48 are rejected. The final rejection of claims 1, 4-35, 47, and 48 is appealed.

Status Of Amendments

Appellants filed a Request for Reconsideration after Final ("the Response") on January 21, 2005. In the Advisory Action mailed February 10, 2005, the Examiner alleged that the Response did not place the application in condition for allowance. Two prior art references were first cited in the Advisory Action. The Response is entered for purposes of appeal, but the claims have not been amended since the final Office Action mailed on December 2, 2004.

Summary Of Claimed Subject Matter

One embodiment of the invention, as recited in independent claim 1, for example, includes a load bearing arrangement 105 for use with a work machine 100 of the type having a platform 101. The arrangement includes a first load bearing member 106 structured and arranged for coupling to the platform 101 and a second load bearing member 107 structured and arranged for coupling to the first load bearing member. (Fig. 1, paras. [17]-[18]). The second load bearing member 107 includes an end 111 comprising a material having a first yield strength. An aperture 606 is formed in the end and having an aperture wall 803. At least one support member 801 is contained within the aperture adjacent to at least a portion of the aperture wall. The support member includes an opening sized to receive a bearing 802 and having a second yield strength greater than the first yield strength. (Figs. 6 & 8, para. [29]).

Another embodiment of the invention, as recited in independent claim 12, for example, includes a load bearing arrangement 105 for use with a work machine 100 of the type having a platform 101. The load bearing arrangement includes at least one load bearing member 106 structured and arranged for coupling to the platform. (Fig. 1, paras. [17]-[18]). The load bearing member comprises a first side 200 and a second side 200. (Fig. 2, para. [19]). Further, one of the first side or the second side comprises a plurality of side plates 400 and 404; each said side plate having a centerline axis 401, 405. (Fig. 4, para. [23]). At least two adjacent side plates, each having a different thickness, on one of the first side or the second side are coupled together such that the centerline axis of each side plate are colinear. (Fig. 4, para. [23]).

Another embodiment of the invention, as recited in independent claim 15, for example, includes a load bearing arrangement 105 for use with a work machine 100 of the type having a platform 101. The load bearing arrangement includes a plurality of pieces 200 and 221 connectable to form a load bearing member structured and arranged for pivotable attachment to the platform. (Fig. 7, para. [27]). The load bearing arrangement also includes a weldment 900 connecting at least two of the pieces 901 and being simulated for effects of heat on at least one of the pieces subject to the weldment before the weldment is constructed. (Figs. 9-10, paras. [30]-[31]).

Grounds of Rejection

A. Claims 1, 5-10, 13, and 14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,158,949 to Walth et al. (hereinafter "Walth") in view of U.S. Patent No. 5,503,234 to Liston (hereinafter "Liston").

B. Claims 4, 11, 17-20, 47, and 48 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and further in view of El Wakil, Processing and Design for Manufacturing (Prentice Hall 1989) (hereinafter "El Wakil").

C. Claims 15, 16, and 21-35 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Walth in view of U.S. Patent No. 6,060,682 to Westbroek et al. (hereinafter "Westbroek") and further in view of El Wakil.

D. Claim 12 stand rejected under 35 U.S.C. § 102(b) as anticipated by Westbroek or, in the alternative, under 35 U.S.C. 103(a) as unpatentable over Walth in view of Westbroek. [1]

[1] The rejection of claims 47 and 48 under 35 U.S.C. § 112, first paragraph, has been withdrawn as indicated in the Advisory Action mailed February 10, 2005.

Argument

The rejection of claims 1, 5-10, 13 and 14 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston should be withdrawn

At pages 3-5 of the Final Office Action, claims 1, 5-10, 13, and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Walth in view of Liston. Applicants respectfully traverse this rejection because the Examiner has failed to establish a prima facie case of obviousness.

A. Walth fails to teach or suggest all elements of independent claim 1

Independent claim 1 recites a combination including, for example, "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength." Walth fails to teach at least the claim elements quoted above.

Walth discloses a boom assembly of a work machine including a coupling subassembly. "Coupling subassembly 24 further includes a boss 50 having an end 60, an end 62, and a pin passageway 52 extending therethrough." Walth, column 3, lines 16. "Coupling subassembly 24 also includes an auxiliary support member 46 having a hole 54 defined therein, and an auxiliary support member 48 having a hole 74 defined therein." Walth, column 3, lines 6-13. "Coupling subassembly 24 still further includes a bearing member 56, a bearing member 76, and a substantially U-shaped supplemental support plate 42." Walth, column 3, lines 6-13.

However, in Walth, none of support members 46 and 48 are "contained within said aperture adjacent to at least a portion of said aperture wall." Further, Walth does not mention any yield strength of members of the coupling assembly. The Examiner conceded that Walth is silent on whether the second yield strength is greater than said first yield strength. (Office Action at 4). Thus, Walth fails to teach or suggest at least "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength," as required by claim 1 (emphasis added).

B. Liston fails to Cure Walth's deficiencies

Liston fails to cure Walth's deficiencies. Liston teaches a bearing assembly with a polycrystalline superlattice coating. Regarding the polycrystalline superlattice coating, Liston states that "[t]he most effective wear resistance is typically imparted where all bearing assembly surfaces, such as an outer race, an inner race and a roller element are coated with the coating set forth herein." Liston, column 8, lines 57-63, emphasis added. At least because yield strength corresponds to stress of structures and not to wear resistance of structures, Liston's teaching of wear resistance does not constitute a teaching of "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a

bearing; and said support member having a second yield strength greater than said first yield strength," as required by claim 1 (emphasis added).

C. The Examiner incorrectly applied prior art references

As explained above, Walth in view of Liston fail to teach or suggest all elements of independent claim 1. Nevertheless, the Examiner applied Walth in view of Liston to reject claim 1. In response to Applicants' arguments, the Examiner alleged that "Walth is not used as the teaching of relative yield strengths, this teaching is found in Liston," and "relative yield strength is taught through relative hardness, as it is known that hardness and yield strength are related (see the definition Brinell Hardness)." (Office Action at 11-12.) Applicants respectfully disagree.

By stating that "relative yield strength is taught through relative hardness," the Examiner apparently recognized that Liston does not teach relative yield strength directly. Further, contrary to the Examiner's allegation, Liston's relative hardness cannot constitute a teaching of relative yield strength. Liston discloses a surface coating scheme where "one or more surfaces of any of the bearing assemblies described herein are coated with one or more protective composite superhard surface coatings." Liston, column 8, lines 21-24, emphasis added. Liston indicates that the coating scheme has "[t]he most significant improvement in wear resistance involving the coating of only a portion of the bearing assembly." Liston, column 8, lines 60-63, emphasis added. Yield strength, on the other hand, corresponds to stress of structures, not wear resistance of structures. Thus, Liston's teaching of using a relative harder protective coating to enhance wear resistance does not constitute a "support member having a second yield strength greater than said first yield strength," as recited in claim 1. (emphasis added.)

The Examiner cited two new references in the advisory action, "Material Hardness," and "Material Definitions." The Examiner insisted that "yield strength and hardness are related." "Thus the references meet the yield strength limitations." (Advisory Action, continuation sheet). Applicants respectfully disagree.

Even in the documents cited by the Examiner, "yield strength" and "Brinell Hardness" are two different terms. "Yield strength" refers to "[a] value determined through actual destructive testing that indicates the amount of resistance to permanent deformation (bending). A material that is stressed to a point below its yield strength, will return to its original state when the stress is removed." Material Definitions. On the other hand, "Brinell hardness" refers to "[a] value determined by testing used to compare the hardness of different materials. A material with a high Brinell number will have a higher surface hardness, and therefore resists wear better than a material with a lower Brinell number." Material Definitions.

Contrary to the Examiner's allegations, a higher Brinell hardness number does not necessarily indicate a higher yield strength material. For example, a ceramic or glass material may have a high hardness, but may only have poor yield strength. See Accuratus – Ceramics and Glasses Materials Properties, available at http://www.accuratus.com/materials.html. Therefore, the Examiner's application of hardness teaching of Liston on claim 1 is not proper.

Furthermore, a surface coating as described by Liston is coated on the surface of a bearing member. The surface coating cannot exist independently from the bearing member. The surface coating thus is a integral part of the bearing member such that the bearing member obtains an improved surface hardness. Therefore, the surface

coating in Liston cannot teach or suggest "at least one support member contained within said aperture adjacent to at least a portion of said aperture wall," as recited in claim 1. Accordingly, the Examiner's application of support member teaching of Liston on claim 1 is not proper.

D. The 103 rejection of claims 1, 5-10, 13, and 14 should be withdrawn

As explained above, neither Walth nor Liston, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in claim 1. A prima facie case of obviousness has not been established. Accordingly, the rejection of claim 1 should be withdrawn. Because claims 5-10, 13, and 14 depend on claim 1, either directly or indirectly, the rejection of claims 5-10, 13, and 14 should also be withdrawn for at least the same reasons stated above.

The rejection of claims 4, 11, 17-20, 47, and 48 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and El Wakil should be withdrawn

A. The 103 rejection of claims 4 and 11 should be withdrawn

Claims 4 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and further in view of El Wakil. (Office Action at 5) Applicants respectfully traverse the Examiner's rejection of claims 4 and 11.

Claims 4 and 11 depend on claim 1, either directly or indirectly. As explained above, Walth in view of Liston fail to teach at least "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and said support member having a second yield strength greater than said first yield strength," as recited in claim 1.

El Wakil fails to cure Walth's and Liston's deficiencies. El Wakil teaches general text book knowledge about welding processes and heat effects on weldment. El Wakil explains that "[f]usion-welding includes a group of processes that all produce welded joints as a result of localized heating of the edges of the base metal above its melting temperature." El Wakil at 71. El Wakil also mentions welding defects and testing and inspection of welds. See El Wakil at 87-90. However, El Wakil does not teach or suggest "said second load bearing member having an end comprising a material having a first yield strength; an aperture formed in said end and having an aperture wall; at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a

bearing; and said support member having a second yield strength greater than said first yield strength," as recited in claim 1.

Thus, none of Walth, Liston, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in claim 1. Because claims 4 and 11 depend on claim 1, either directly or indirectly, the rejections of claims 4 and 11 should be withdrawn for at least the same reasons stated above regarding the rejection of claim 1.

B. The 103 rejection of claims 17-20 should be withdrawn

Claims 17-20 were rejected under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and further in view of El Wakil. (Office Action at 5) Applicants respectfully traverse the Examiner's rejection of claims 17-20.

Because claims 17-20 depend from claim 15, either directly or indirectly, claims 17-20 include all elements of claim 15. However, the Examiner rejected claims 17-20 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and further in view of El Wakil, while rejecting independent claim 15 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Westbroek and further in view of El Wakil. Although the above rejections are inconsistent, Applicants assume the same references applied to the dependent claims are also applied to the base claim.

Independent claim 15 recites a combination including, for example, "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed." Walth fails to teach or suggest "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as required by claim 15.

Walth discloses a boom assembly of a work machine including a coupling subassembly. "Coupling subassembly 24 further includes a boss 50 having an end 60, an end 62, and a pin passageway 52 extending therethrough." Walth, column 3, lines 16. However, Walth does not teach or suggest simulating weldment for effects of heat, as recognized by the Examiner. (Office Action at 4). Neither does Liston. Liston teaches a bearing assembly with polycrystalline superlattice coating, but does not mention simulating weldment for effects of heat.

El Wakil fails to cure both Walth's and Liston's deficiencies. El Wakil discusses the metallurgy of fusion welding. "During fusion welding three zones can be identified, . . . The second zone, which is referred to as the heat-affected zone, or HAZ, is that portion of the base metal that has not been melted." El Wakil, at 71. "In fusion-welding processes, considerable thermal stresses develop during heating and subsequent cooling of the workpiece, especially with those processes that result in large heat-affected zones." El Wakil, at 87.

While El Wakil describes the general effects of the heating associated with welding, El Wakil does not mention simulating the welding for effect of heat on specific workpieces in order to minimize the adverse effects of welding. A general description or teaching of welding process or heat effect does not constitute a teaching of simulating weldment for effect of heat. Specifically, El Wakil fails to teach or suggest "said weldment being simulated for effects of heat on at least one said pieces subject to said weldment before said weldment is constructed," as recited in claim 15 (emphasis added). Therefore, El Wakil fails to teach or suggest "said weldment being simulated

for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as required by claim 15.

The Examiner again insisted that "[p]icking a weld and technique is simulating the effects of heat prior to weld construction." (Advisory Action, continuation sheet). Applicants respectfully disagree. A general preparation for weld construction, such as choosing the welding technique, setting up welding workpieces, etc, does not simulate the effects of heat on the work piece subject to the weldment, simply because such preparation can not predict and simulate the heat effect.

Therefore, none of Walth, Liston, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention as recited in claim 15. Claim 15 is therefore allowable under 35 U.S.C. § 103(a) over Walth in view of Liston and El Wakil. Because claims 17-20 depend on claim 15, either directly or indirectly, the rejection of claims 17-20 should be withdrawn for at least for the above stated reasons.

C. The 103 rejection of claims 47 and 48 should be withdrawn

Claims 47 and 48 were rejected under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Liston and further in view of El Wakil. (Office Action at 5) Applicants respectfully traverse the Examiner's rejection of claims 47 and 48.

Independent claim 47 recites a combination including, for example, "at least one support member comprising a material having a second yield strength, wherein the support member is contained within the aperture adjacent to at least a portion of said aperture wall; and at least one bearing, pressure-fitted in the support member, structured to receive a pin." As explained above, Walth, Liston, and El Wakil fail to teach or suggest "at least one support member comprising a material having a second

yield strength, wherein the support member is contained within the aperture adjacent to at least a portion of said aperture wall." Further, none of Walth, Liston, and El Wakil teaches or suggests "at least one bearing, pressure-fitted in the support member, structured to receive a pin."

None of Walth, Liston, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in claim 47. Therefore, a prima facie case of obviousness has not been established, and the rejection of claim 47 should be withdrawn. Because claim 48 depends from claim 47, the rejection of claim 48 should also be withdrawn for at least the same reasons.

The rejection of claims 15, 16, and 21-35 under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Westbroek and El Wakil should be withdrawn

Claims 15, 16, and 21-35 were rejected under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Westbroek and further in view of El Wakil. Applicants respectfully traverse the Examiner's rejection of claims 15, 16, 21-35 under 35 U.S.C. § 103(a).

As explained above, Walth and El Wakil fail to teach or suggest at least "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as required by claim 15.

Westbroek fails to cure the deficiencies of Walth and El Wakil. Westbroek discloses a joint "formed between adjacent edges of a pair of weldable components by forming an undercut on one of the edges," and "the edges are laser welded by impinging a beam on the portion to melt the overlap." Westbroek, abstract. Westbroek teaches that, to prepare for the laser welding, "[t]he sheared surfaces of the metals or weld components have to be maintained parallel to each other by being clamped onto a suitable support while the welding head, typically a laser beam, moves relative to the seam to achieve joining of the components." Westbroek, column 1, lines 21-26. "[T]he supports 16 can be arranged as shown in FIG. 6 to align the components 12c, 14c in the desired position so that after welding, the components adopt a corresponding position." Westbroek, column 4, lines 46-49. However, Westbroek's teaching of preparation of supports to hold the components to be welded does not constitute a teaching of "said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed," as recited by claim 15 (emphasis added).

Therefore, none of Walth, Westbroek, and El Wakil, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention as recited in claim 15. Thus, a prima facie case of obviousness has not been established. Accordingly, the rejection of claim 15 should be withdrawn. Because claims 16 and 21-30 depend on claim 15, either directly or indirectly, the rejection of claims 16 and 21-30 should also be withdrawn for at least for the above stated reasons.

Independent claim 31, while of different scope, recites similar language as in claim 15. Claim 31 is therefore also allowable for at least the same reasons stated above. Accordingly, the rejection of claim 31 and its dependent claims 32-35 should be withdrawn.

The rejection of claim 12 under 35 U.S.C. § 102(b) as anticipated by Westbroek or, in the alternative, under 35 U.S.C. § 103(a) as unpatentable over Walth in view of Westbroek should be withdrawn

Claim 12 was rejected under 35 U.S.C. § 102(b) as anticipated by Westbroek or, in the alternative, under 35 U.S.C. 103(a) as unpatentable over Walth in view of Westbroek. Applicants respectfully traverse the Examiner's rejection.

A. The 102 rejection of claim 12 should be withdrawn

Claim 12 recites a combination including, for example, "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear." Walth fails to teach or suggest at least "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear," as recited by claim 12.

As explained above, Westbroek discloses preparations of supports to hold the components to be welded. In Fig. 6, Westbroek teaches that "components 12c, 14c" may be supported by unnumbered structures to "align components 12c, 14c in the desired position so that after welding, the components adopt a corresponding position." Westbroek, column 4, lines 45-54, emphasis added.

However, such unnumbered structures do not constitute a "load bearing member," as recited in claim 12. Furthermore, welding components 12c and 14c in Westbroek are general welding components and, thus, do not constitute "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate

are colinear," as recited by claim 12. Thus, Westbroek fails to disclose each and every element of claim 12. Accordingly, the rejection of claim 12 under 35 U.S.C. § 102 should be withdrawn.

B. The alternative 103 rejection of claim 12 should be withdrawn

Walth discloses a boom assembly of a work machine including a coupling subassembly. "Coupling subassembly 24 further includes a boss 50 having an end 60, an end 62, and a pin passageway 52 extending therethrough." Walth, column 3, lines 16. However, Walth does not teach or suggest "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear," as recited by claim 12.

Westbroek fails to cure Walth's deficiencies. As explained above, Westbroek discloses preparations of supports to hold the components to be welded. In Fig. 6, Westbroek teaches that "components 12c, 14c" may be supported by unnumbered structures to "align components 12c, 14c in the desired position so that after welding, the components adopt a corresponding position." Westbroek, column 4, lines 45-54, emphasis added. However, such unnumbered structures do not constitute a "load bearing member," as recited in claim 12. Furthermore, welding components 12c and 14c in Westbroek are general welding components to be aligned for welding, and, thus, do not constitute "at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear," as recited by claim 12.

Therefore, neither Walth nor Westbroek, taken alone or in any reasonable combination, teaches or suggests all elements of Applicants' invention, as recited in

claim 12. A prima facie case of obviousness has not been established. Accordingly, the rejection of claim 12 should be withdrawn.

Conclusion

For the reasons given above, pending claims 1, 4-35, 47, and 48 are allowable, and reversal of the Examiner's rejection is respectfully requested.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: April 22, 2005

By: _____
Wenye Tan
Reg. No. 55,662

Claims Appendix to Appeal Brief Under Rule 41.37(c)(1)(viii)

1. A load bearing arrangement for use with a work machine of the type having a platform, comprising:

a first load bearing member structured and arranged for coupling to the platform;

a second load bearing member structured and arranged for coupling to the first load bearing member;

said second load bearing member having an end comprising a material having a first yield strength;

an aperture formed in said end and having an aperture wall;

at least one support member contained within said aperture adjacent to at least a portion of said aperture wall, said support member having an opening sized to receive a bearing; and

said support member having a second yield strength greater than said first yield strength.

4. The load bearing arrangement as set forth in claim 1 wherein said support member is laser welded to said end.

5. The load bearing arrangement as set forth in claim 1 wherein the first load bearing member comprises:

at least one top plate;

at least one bottom plate; and

at least one pair of spaced apart side plates each attached to said top plate and said bottom plate.

6. The load bearing arrangement as set forth in claim 5 wherein said top plate comprises at least one integral mounting structure.

7. The load bearing arrangement as set forth in claim 5 further comprising:

a substantially cylindrical attachment structure extending from at least one of said pair of side plates; and

wherein said at least one of said pair of side plates is attached to said attachment structure.

8. The load bearing arrangement as set forth in claim 7 wherein:

said first load bearing member has a transverse width; and

said attachment structure spans said transverse width.

9. The load bearing arrangement as set forth in claim 5 further comprising at least one reinforcing structure attached to at least one of said pair of side plates.

10. The load bearing arrangement as set forth in claim 9 wherein said reinforcing structure comprises:

a base portion; and

a rib portion extending from said base portion.

11. The load bearing arrangement as set forth in claim 9 wherein said reinforcement structure is laser welded to said at least one of said pair of side plates.

12. A load bearing arrangement for use with a work machine of the type having a platform, comprising:

at least one load bearing member structured and arranged for coupling to the platform, wherein

said load bearing member comprises a first side and a second side;

one of said first side or said second side comprises a plurality of side plates;

each said side plate having a centerline axis; and

at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear.

13. The load bearing arrangement as set forth in claim 1 further comprising an attachment pivotally coupled to said first bearing member.

14. The load bearing arrangement as set forth in claim 13 wherein said attachment comprises a bucket.

15. A load bearing arrangement for use with a work machine of the type having a platform, comprising:

a plurality of pieces connectable to form a load bearing member structured and arranged for pivotable attachment to the platform; and

a weldment connecting at least two of said pieces,

said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed.

16. The load bearing arrangement as set forth in claim 15 wherein said effects are at least one of stress and deformation.

17. The load bearing arrangement as set forth in claim 15, further comprising:

an end attached to said load bearing member and comprising a material having a first yield strength;

an aperture formed in said end and having an aperture wall;

at least one support member contained within said aperture adjacent to at least a portion of said aperture wall; and

said support member having a second yield strength greater than said first yield strength.

18. The load bearing arrangement as set forth in claim 17 wherein said support member comprises a substantially cylindrical structure having a through opening.

19. The load bearing arrangement as set forth in claim 18 further comprising a bearing received in said opening.

20. The load bearing arrangement as set forth in claim 18 wherein said support member is laser welded to said end.

21. The load bearing arrangement as set forth in claim 15 wherein said load bearing member comprises:

at least one top plate;

at least one bottom plate; and

at least one pair of spaced apart side plates each attached to said top plate and said bottom plate.

22. The load bearing arrangement as set forth in claim 21 wherein said top plate comprises at least one integral mounting structure.

23. The load bearing arrangement as set forth in claim 21 further comprising:

a substantially cylindrical attachment structure extending from at least one of said pair of side plates; and

wherein said at least one of said pair of side plates is attached to said attachment structure.

24. The load bearing arrangement as set forth in claim 23 wherein:

said load bearing member has a transverse width; and

said attachment structure spans said transverse width.

25. The load bearing arrangement as set forth in claim 21 further comprising at least one reinforcing structure attached to at least one of said pair of side plates.

26. The load bearing arrangement as set forth in claim 25 wherein said reinforcing structure comprises:

a base portion; and

a rib portion extending from said base portion.

27. The load bearing arrangement as set forth in claim 25 wherein said reinforcement structure is laser welded to said at least one of said pair of side plates.

28. The load bearing arrangement as set forth in claim 15 wherein:

said load bearing member comprises a first side and a second side;

one of said first side or said second side comprises a plurality of side plates;

each said side plate having a centerline axis; and

at least two adjacent side plates, each having a different thickness, on one of said first side or said second side are coupled together such that said centerline axis of each said side plate are colinear.

29. The load bearing arrangement as set forth in claim 15 further comprising an attachment pivotally coupled to said member.

30. The load bearing arrangement as set forth in claim 29 wherein said attachment comprises a bucket.

31. A load bearing apparatus, comprising:

a work machine having a platform;

at first member, having a longitudinal axis, coupled to said platform;

a first movement means for moving said first member relative to said platform;

a second member, having a longitudinal axis, pivotally coupled to said first member;

a second movement means for moving said second member relative to said first member;

a plurality of pieces connectable to form at least one of said first and second members; and

a weldment connecting at least two of said pieces,

said weldment being simulated for effects of heat on at least one of said pieces subject to said weldment before said weldment is constructed.

32. The load bearing apparatus as set forth in claim 31 wherein said first and said second movement means comprises hydraulic cylinders.

33. The load bearing apparatus as set forth in claim 31 further comprising an attachment attached adjacent an end of said second member.

34. The load bearing apparatus as set forth in claim 31 wherein said attachment comprises a bucket.

35. The load bearing arrangement as set forth in claim 31 wherein said effects are at least one of stress and deformation.

47. A load bearing member in a load bearing arrangement for use with a work machine, comprising:

an end comprising a material having a first yield strength;

an aperture, having an aperture wall, formed in the end;

at least one support member comprising a material having a second yield strength, wherein the support member is contained within the aperture adjacent to at least a portion of said aperture wall; and

at least one bearing, pressure-fitted in the support member, structured to receive a pin.

48. The load bearing member according to claim 47, wherein the support member is laser welded to the end.

Evidence Appendix to Appeal Brief Under Rule 41.37(c)(1)(ix)

Accuratus – Ceramics and Glasses Materials Properties, available at http://www.accuratus.com/materials.html (printed April 21, 2005).

Related Proceedings Appendix to Appeal Brief Under Rule 41.37(c)(1)(x)

None

Materials

Materials

Ceramics and glasses are inorganic, nonmetallic materials consisting of metallic and nonmetallic elements bonded primarily with ionic and covalent bonds. These high strength bonds give rise to the special characteristics of these materials. They occupy a unique place in the spectrum of engineered materials offering many desirable alternatives to the metals and polymers in common usage.

General Characteristics of Structural Materials

Characteristic	Ceramics	Metals
Density	Low to High	Low to High
Hardness	High	Medium
Tensile Strength	Low to Medium	High
Compressive Strength	High	Medium to High
Young's Modulus	Medium to High	Low to High
Melting Point	High	Low to High
Dimensional Stability	High	Low to Medium
Thermal Expansion	Low to Medium	Medium to High
Thermal Conductivity	Medium	Medium to High
Thermal Shock	Low	Medium to High
Electrical Resistance	High	Low
Chemical Resistance	High	Low to Medium
Oxidation Resistance	Medium to High	Low
Machinability	Medium	Low

There are wide variations in the properties of ceramics and glasses due prim differences in bonding and wide variations in chemical composition. Howev materials class, the following characteristics are typical.

- ✓ Low to moderate density compared to metals
- ✓ High modulus of elasticity (stiffness)
- ✓ Good strength retention at elevated temperatures
- ✓ Resistant to high temperature creep

- ✓ Dimensional stability
- ✓ High compressive strength
- ✓ Low to moderate tensile and shear strength
- ✓ High hardness
- ✓ Corrosion and oxidation resistant
- ✓ Good electrical insulation properties
- ✓ Wide range of thermal conductivity
- ✓ Wide range of thermal expansion coefficient
- ✓ Brittle
- ✓ Low impact strength
- ✓ Sensitive to thermal shock

Ceramics for engineering applications can be broadly broken into "traditiona "new" materials. We define traditional materials as those produced from mir mined directly from the earth. The newer ceramic materials, those with well and controlled properties are produced from nearly chemically and phase pu starting materials. Accuratus is capable of working with most of these mater types.

An inventory of "new" ceramic materials is maintained at Accuratus for rapi fulfillment of your design requirements. We have a network of quality mater suppliers so that we can assure you of consistent quality materials for your applications.

Typical property characteristics for materials stocked at Accuratus are listed each of the material pages. Personnel with extensive experience in ceramic manufacture, design and application are available for detailed discussions an **consultation** on the most appropriate ceramic available for your application conditions.

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